

Fig. 1

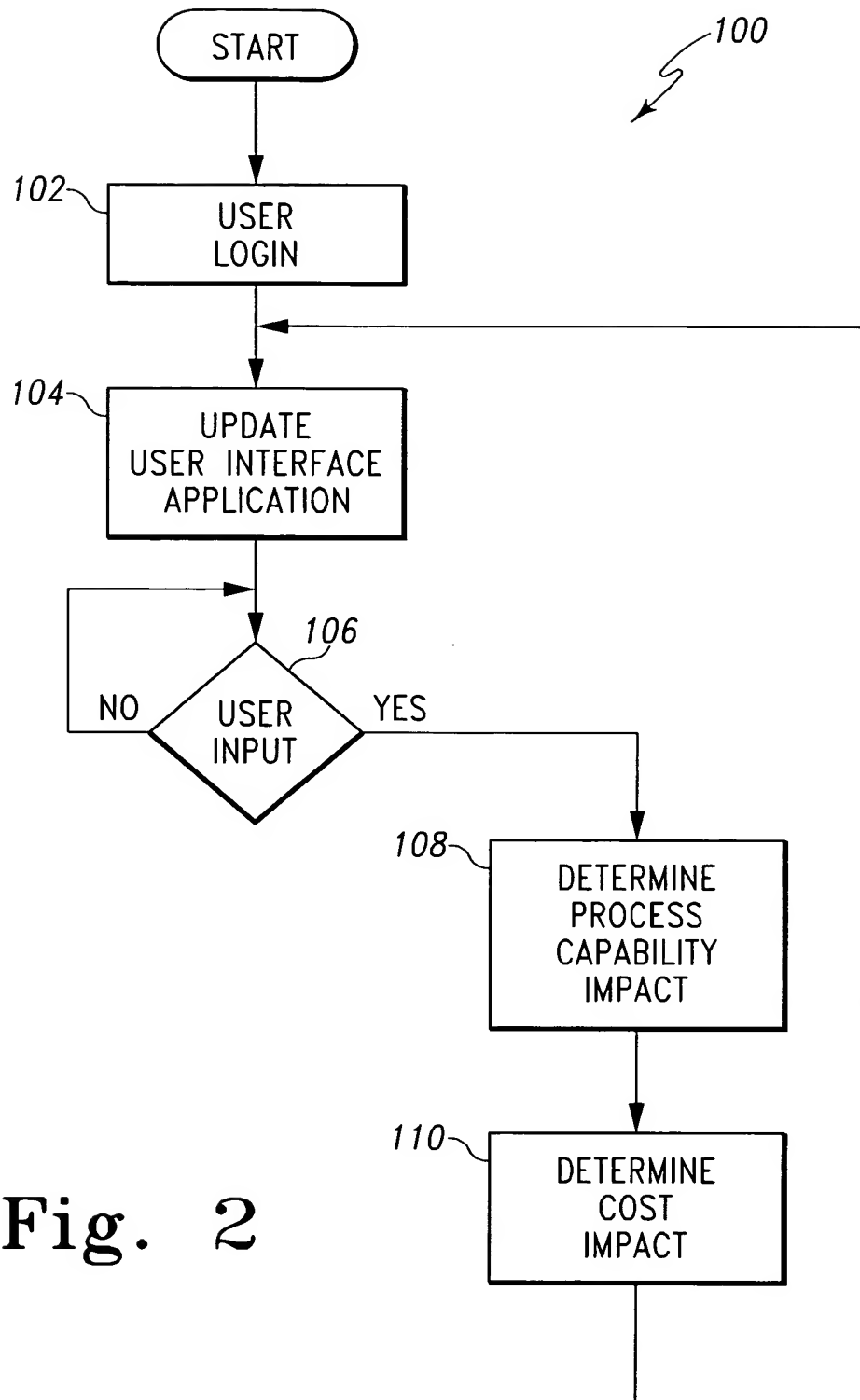


Fig. 2

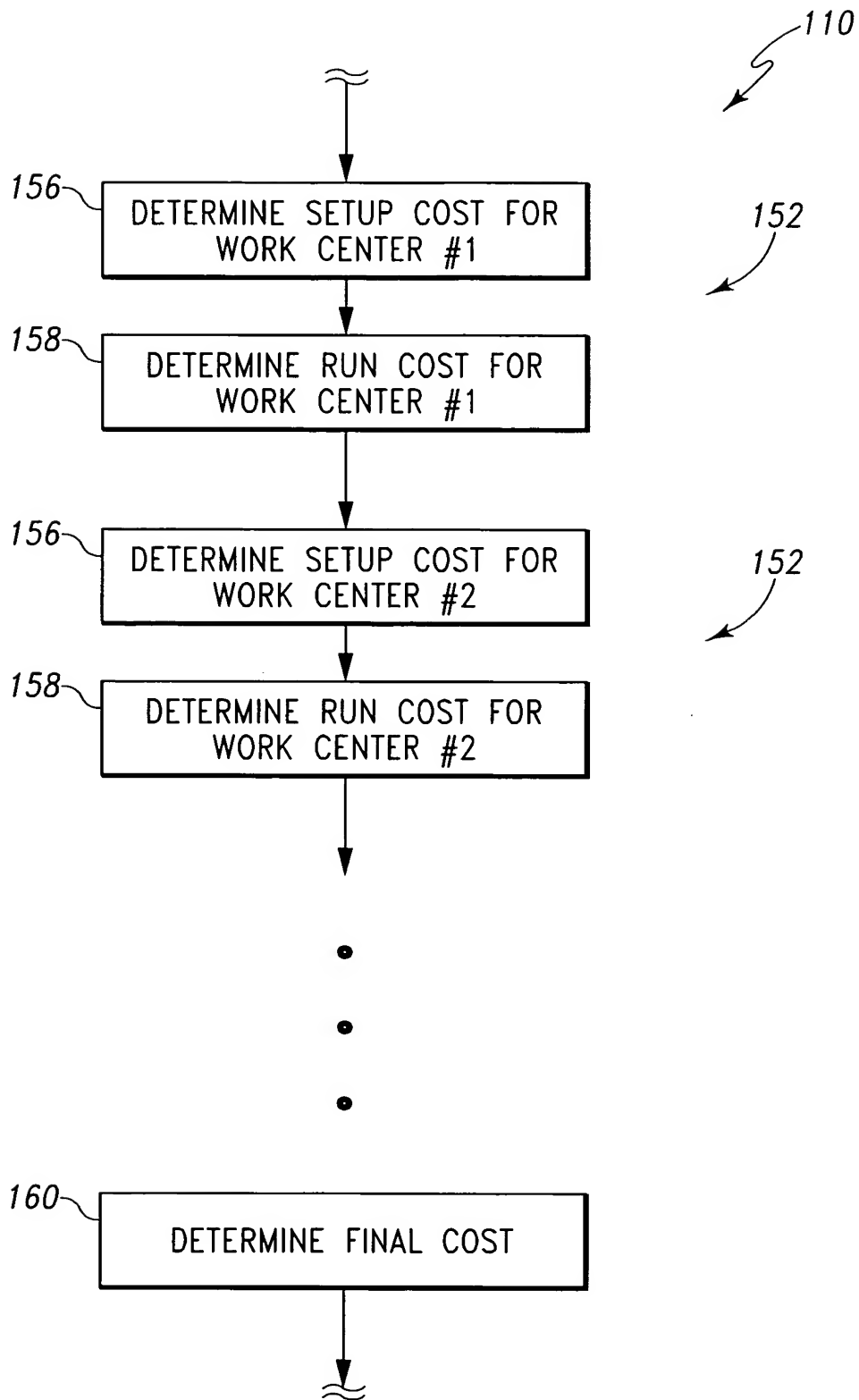


Fig. 3

200

Bare Board Design Assistant - Microsoft Internet Explorer

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Design Assistant Tools

Bare Board 204

Bare Board Design Assistant

Set Monitor to 1024 x 768 Pixels

Monitor 85 ZOOM

Hold Cursor over a question for description

Single Board or Multi-Board Array?

Width	Length
0	$\pm .010"$
0.750	0
0.750	0.750

Manufacturing Panel UtilizationX (Calculated)

Number of Boards Manufacturing Panel (Calculated)

Panel border X direction (standard is .75")

Enter Quantity

Turnaround Required?

Select type of Board

Select Laminates Material

Select Board Thickness (Inches) / Tolerance

Select Ounces of Finished Copper (Outer Layers)

Select Ounces of Copper (Inner Layers)

Select Surface Finish over Copper

Min. Finished Plated Through Hole (Outer Layer)

Plated Thru Hole Prep

Min. Finished Plated Through Hole (Inner Layer)

Maximum Finished Plated Through Hole (Inches)

Enter Total * Different Through Hole Sizes

Are there any Plated Slots? ☐ Annular Ring

Fixtures/ Tooling

Board

202

206

208

220

222

224

226

GO TO SAVED

CLEAR ALL

PRINT

SAVE/COMPARE

1 Option

2 Option

3 Option

< Profile Tolerance

371.25 Sq. In. / Manufacturing Panel (22.5 X 16.5)

0 Up Manufacturing Panel

< Panel border Y direction

0.300 < Board step (standard is .3")

<<Symmetric Construction of Multi-Layer Recommended

3.1:1 Aspect Ratio

208

< Min. Pad Size (Outer)

0.002 Annular Ring (Outer Layers)

< Outer Layer Hole Tolerance

< Min. Pad Size (Inner)

0.001 Annular Ring (Inner Layers)

< Inner Layer Hole Tolerance

< Holes < or = 0.020"

Fig. 4

200

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Design Assistant Tools

Bare Board

D15

f2

Bare Board Design Assistant

Set Monitor to 1024 x 768 Pixels

Monitor 85 ZOOM

Single Board or Multi-Board Array?

Single Board

Enter Outside Board Dimensions (Inches)

Width 4.75

Length 7.334

± .010"

Manufacturing Panel UtilizationX (Calculated)

75%

Number of Boards / Manufacturing Panel (Calculated)

4

Panel border X direction (standard is .75")

0.750

Enter Quantity

4 Weeks

Turnaround Required?

2 Working Days (48 Hours)

Select Type of Board

3 Working Days (72 Hours)

Select Laminated Material

5 Working Days

Select Thickness of Finished Copper (Outer Layer)

7 Working Days

Select Thickness of Copper (Inner Layers)

10 Working Days

Select Surface Finish over Copper

3 Weeks

Min. Finished Plated Through Hole (Outer Layer)

0.0197

Plated Thru Hole Prep

standard

Min. Finished Plated Through Hole (Inner Layer)

>=.003

Maximum Finished Plated Through Hole (Inches)

0.0197

Enter Total * Different Through Hole Sizes

0.060

Enter Total * Drilled Holes / Board

>=.002

Are there any Plated Slots?

No

Annular Ring

No

Fixtures/ Tooling Retail Price/ Board

\$0.00

SAVE/COMPARE

1 Option

2 Option

3 Option

GO TO SAVED

CLEAR ALL

PRINT

34.84 Sq. In./Board

< Profile Tolerance

371.25 Sq. In./Manufacturing Panel (22.5 X 16.5)

8 Up Manufacturing Panel

< Panel border Y direction

0.300

< Board step (standard is .3")

211

<< Symmetric Construction of Multi-Layer Recommended

3.1:1 Aspect Ratio

209

< Min. Pad Size (Outer)

0.002 Annular Ring (Outer Layers)

< Outer Layer Hole Tolerance

< Min. Pad Size (Inner)

0.001 Annular Ring (Inner Layers)

< Inner Layer Hole Tolerance

< Holes < α=.020"

Done

Bare Board Design As...

Internet

9:17AM

Fig. 5

Fi. 6

Fi. 6

200

Bare Board Design Assistant - Microsoft Internet Explorer

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Address:

Go

Design Assistant Tools

Bare Board

D29	f _r	Fixtures/ Tooling Retail Price/ Board	SAVE/COMPARE 1 Option 2 Option 3 Option	GO TO SAVED CLEAR ALL PRINT
<p>Bare Board Design Assistant Set Monitor to 1024 x 768 Pixels Monitor: <input type="text"/> 85 <input type="text"/> ZOOM</p> <p>Hold Cursor over a question for description</p> <p>Select Outcomes of Finished Copper (Outer Layers) Select Outcomes of Copper (Inner Layers) Select Surface Finish over Copper</p> <p>1/1 0.500/0.500 HASL (Hot Air Solder Levelled)</p> <p>0.0197 standard 0.037 0.0197 0.037 0.060 0.002</p> <p>Min. Finished Plated Through Hole (Outer Layer) Plated Thru Hole Prep Min. Finished Plated Through Hole (Inner Layer) Maximum Finished Plated Through Hole (Inches) Enter Total # Different Through Hole Sizes Enter Total # Drilled Holes / Board Are there any Plated Slots?</p> <p>214 Annular Ring Example</p> <p>Are there any Non-Plated Slots?</p> <p>216</p> <p>Select Minimum Outer Layer Trace (Inches) Outer Layer Trace Tolerance Select Minimum Inner Layer Trace (Inches) Inner Layer Trace Tolerance Inner Layer Trace Tolerance</p> <p>Solder Mask Needed?</p> <p>0.007 +/- .002 0.007 0.007 +/- .002 0.007 No Yes Green</p> <p>< Outer Layer Space < Inner Layer Space Inner Trace/Space-Good Registration-Good</p> <p>< Min. Pad Size (Outer) 0.002 Annular Ring (Outer Layers) < Outer Layer Hole Tolerance < Min. Pad Size (Inner) 0.001 Annular Ring (Inner Layers) < Inner Layer Hole Tolerance < Holes < or = 0.020"</p>				

Internet 9:19AM

Start Bare Board Design...

213

Fig. 7

Fi. 8

Fi. 8

Fig. 9

9
Fi.

Stanley Loren Bentley et al.
6890-74183

200

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<p>Bare Board Design Assistant - Microsoft Internet Explorer</p>			
<p>D52</p>			
<p>Bare Board Design Assistant</p> <p>Set Magnifier to 1024 x 768 Pixels</p> <p>Monitor 85 ZOOM</p> <p>Hold Cursor over a question for description</p>			
<p>Inner Layer Trace Tolerance</p> <p>SMT Pads Needed?</p> <p>Solder Mask Needed?</p> <p>Solder Mask Type</p> <p>Solder Mask Thickness</p> <p>Are there Plugged Via's</p> <p>Silk Screen Needed?</p> <p>Silk Screen Type</p> <p>Gold Contact Fingers Needed?</p> <p>Carbon Contacts?</p> <p>Design for Controlled Impedance?</p> <p>Controlled Impedance Testing Point #1</p> <p>Controlled Impedance Testing Point #2</p> <p>Controlled Impedance Testing Point #3</p> <p>Test for Controlled Impedance Tested?</p> <p>Is Electrical Testing Required</p> <p>Are there any V-Scores Required?</p> <p>Are there any V-Scores Required?</p> <p>1st additional drill file: Via Size: Layers Transversed</p> <p>Example of Blind</p>		<p>Fixtures/Tooling</p> <p>Retail Price/Board</p> <p>\$0.00</p> <p>\$0.00</p> <p>SAVE/COMPARE</p> <p>1 Option</p> <p>2 Option</p> <p>3 Option</p> <p>GO TO SAVED</p> <p>CLEAR ALL</p> <p>PRINT</p> <p>Registration - Good</p> <p>252 254</p> <p>242</p> <p>HIGH 42.20</p> <p>Manufacturing Difficulty & Process Variation</p> <p>< Solder Mask Color</p> <p>< Peelable?</p> <p>< Solder Mask Registration</p> <p>< Total # Colors Top</p> <p>< Silk Screen Registration</p> <p>< Select & Press "GO"</p> <p>< Select & Press "GO"</p> <p>< Select & Press "GO"</p> <p>< Other Testing Required</p> <p>< # additional drill files</p> <p>< Via Depth</p> <p>< # of Vias</p>	

Fig. 10

240

200

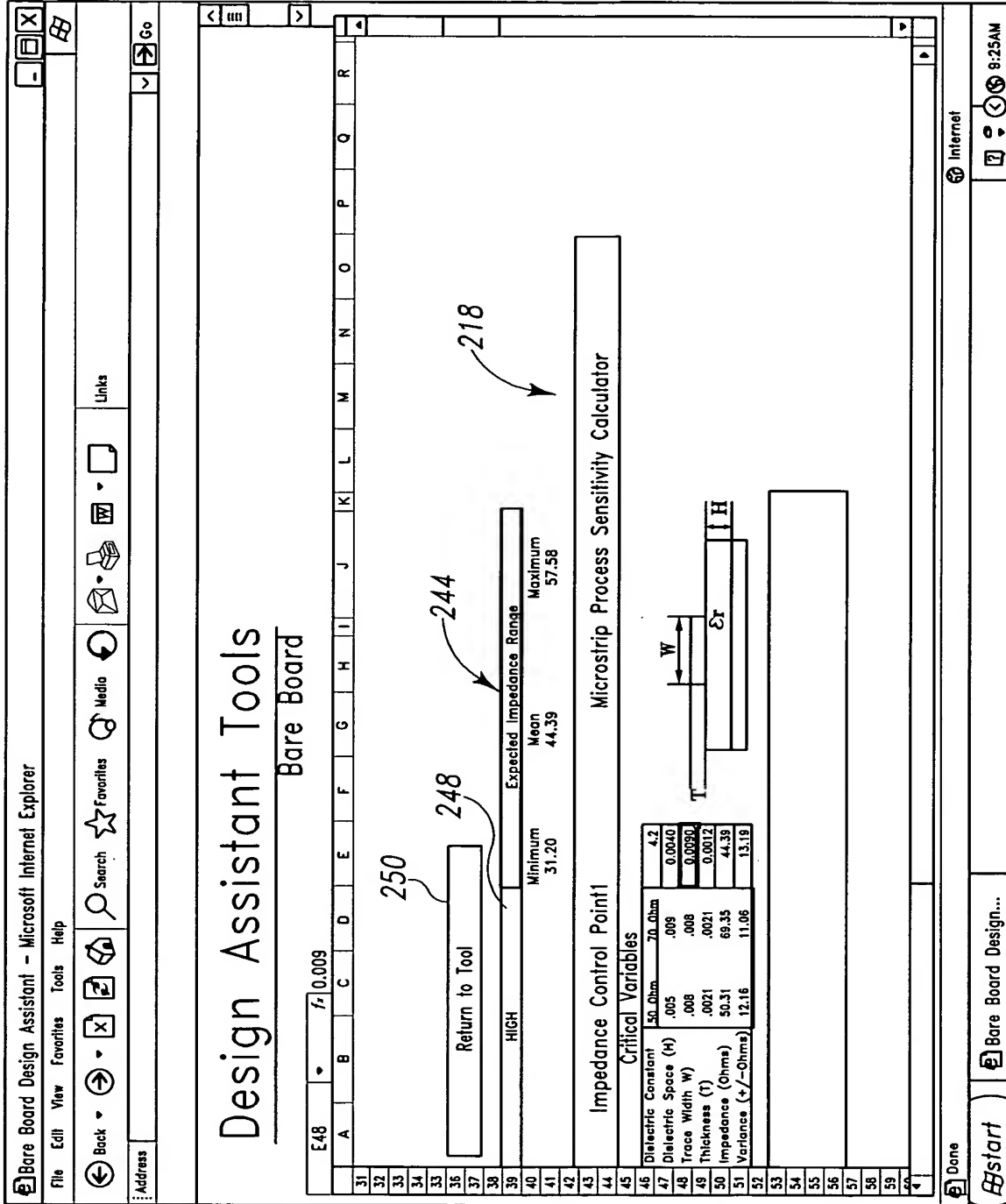


Fig. 11

256

258 

Fig. 12

200

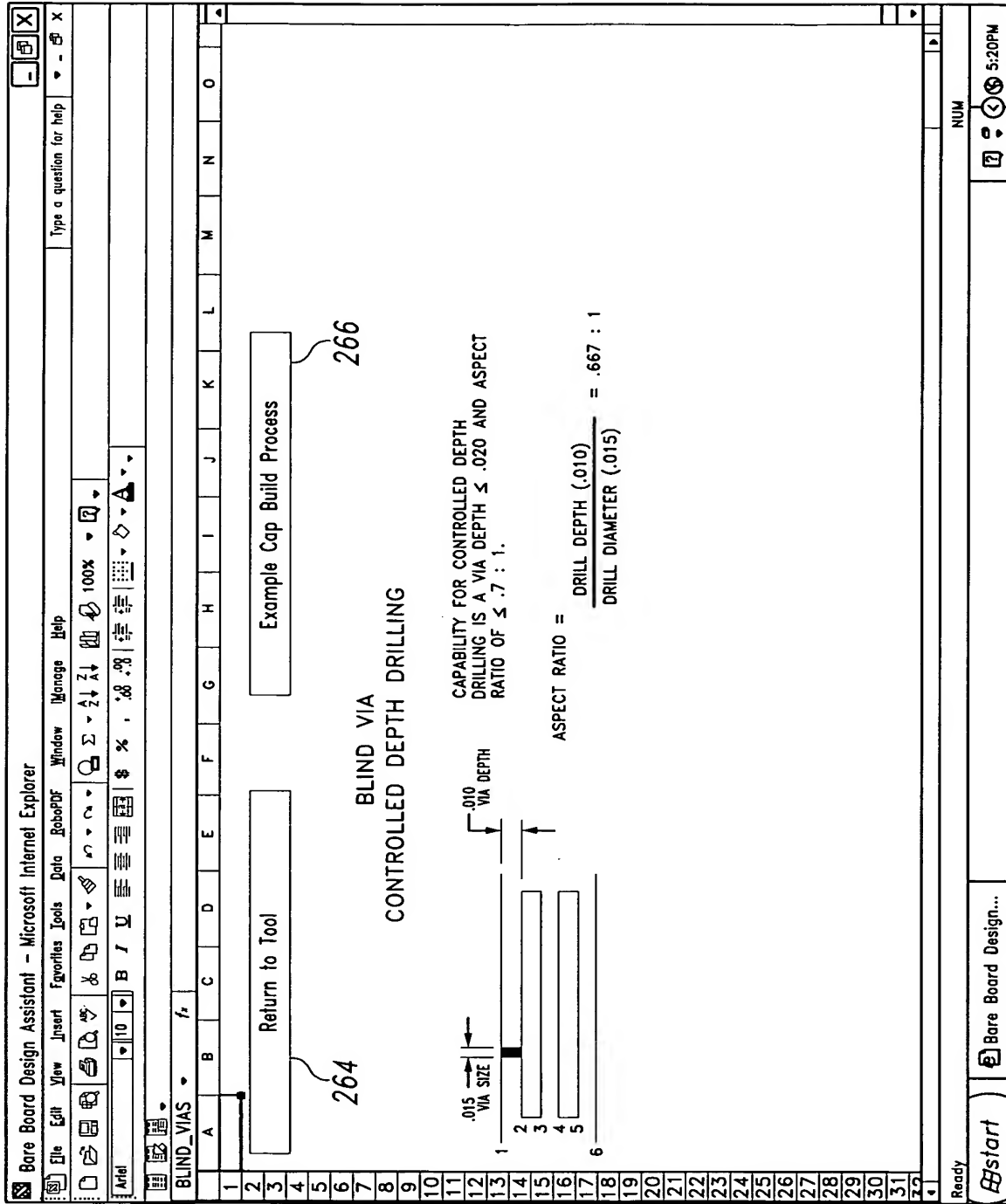


Fig. 13

200

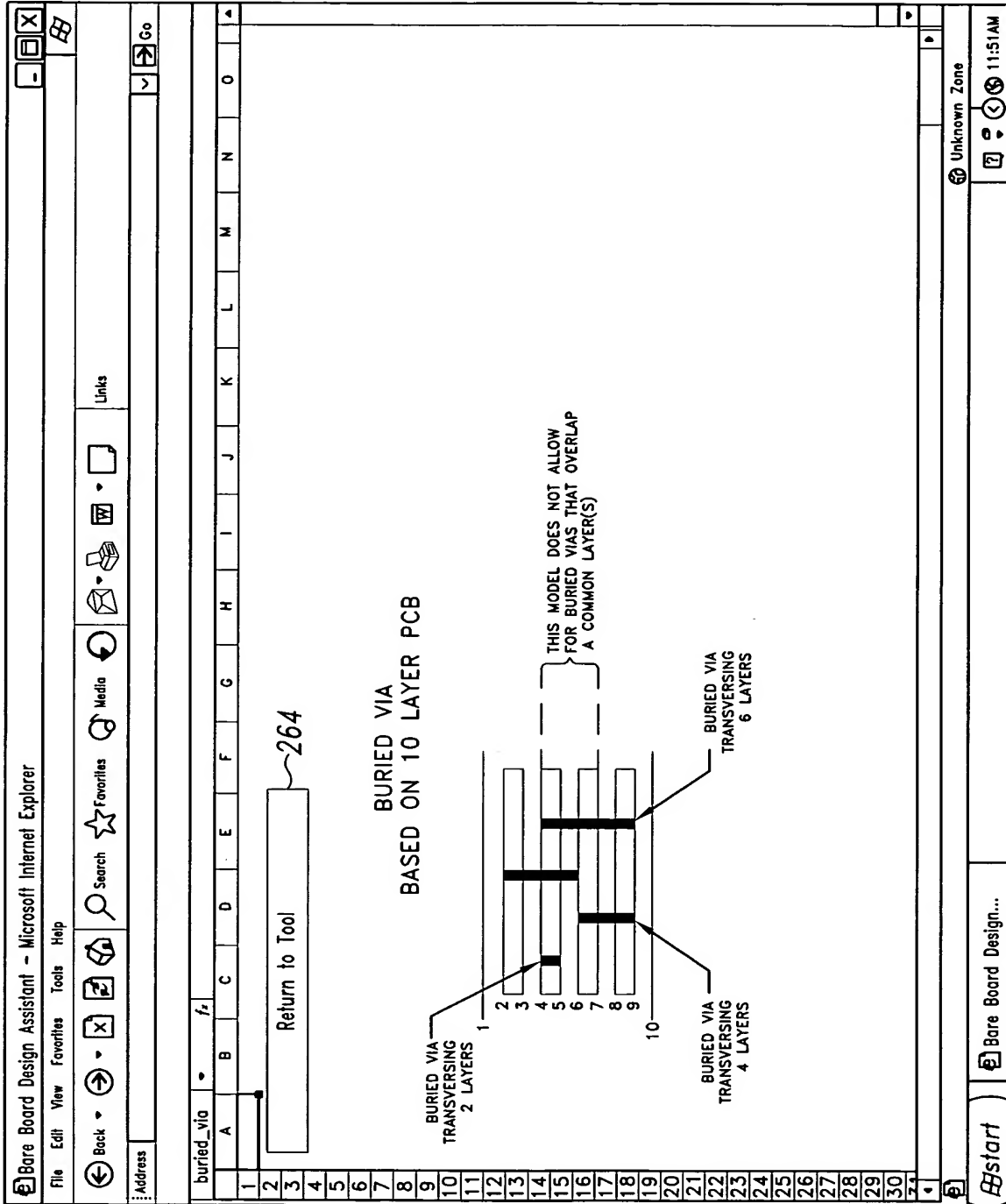


Fig. 14

200

[illegible]

Fig. 15